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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,904	06/20/2003	Robert Sigurd Nelson		9224

7590 04/21/2004

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EXAMINER
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KIKNADZE, IRAKLI

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/600,904

Applicant(s)

NELSON ET AL.

Examiner

Irakli Kiknadze

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 57-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 57-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. In response to the Requirement for Restriction/Election mailed December 19, 2003 the Transmittal Form have been received January 12, 2004 confirming that claims 1-56 have been canceled. Claims 57-59 are currently pending in this application.

#### ***Claim Objections***

2. Claims 57 and 59 are objected to because of the following informalities:

With respect to claim 57, line 2, "a known radiation source distribution " is awkward and should read -- a radiation source --.

With respect to claim 59, Line 2, " a x-ray beam " should read -- an x-ray beam --.

Line 8, " the beam " lacks antecedence and should read -- the x-ray beam --.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claim 57 are rejected under 35 U.S.C. 102(e) as being anticipated by Yarnall et al. (US Patent 6,362,472 B1).

With respect to claim 57, Yarnall teaches a method of calibrating a radiation detection system (10) comprising: providing a known radiation source distribution that emits radiation, (wherein the source is a spherical source (30); Fig.2), measuring the level of radiation emitted from the source (30) that is detected by the detection system (20), and calibrating the detection system (10) by evaluating the detected radiation and balancing the system based upon the detected radiation (see abstract; column 8, lines 11-13 and lines 36-46).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yarnall et al. (US Patent 6,362,472 B1) in view of Dhawale et al. (US Patent 6,314,160 B1).

With respect to claim 58, Yarnall teaches calibrating the detection system (10) by evaluating the detected radiation but silent about using Modulation Transfer Function. Dhawale teaches a radiation detection system (1) comprising (Fig. 1): a radiation source (16) and an energy resolution detector (15) (column 2, lines 51-61 and column 3; lines

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8-17), wherein calibration can be performed to account for energy resolution on the detector (15) by measuring energy-dependent modulation transfer function (MTF) over the expected energy range of the radiation source (16) (column 8; lines 47-49). It would have been obvious to one of ordinary skill in art at the time the invention was made to employ detector energy-dependent calibration teachings of Dhawale in the method of Yhawale in order to provide more accurate calibration of the radiation detection system.

7. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh et al. (US Patent 5,473,656) in view of Possin et al. (US Patent 6,167,110).

With respect to claim 59, Hsieh teaches the effects of tissue attenuation on the intensity and energy distribution of an x-ray beam (24) comprising: aligning an energy-resolving detector array (18) with the x-ray beam (Fig.1, column 3, lines 51-55; and column 4; lines 26-42), measuring a first position-dependent, energy-dependent intensity profile of the x-ray beam at the detector array (18), further, transmitting the x-ray beam through a patient (12), measuring a second position-dependent, energy-dependent intensity profile of the x-ray beam at the detector array immediately after the beam has been transmitted through the patient (12), and comparing the first and the second position-dependent, energy-dependent intensity profiles of the beam (see claim 1). Hsieh fails to teach calibrating energy-resolving detector by determining its energy-dependent modulator transfer function. Possin teaches an imaging apparatus (45), wherein a detector (20) is precisely calibrated by determining its energy-dependent modulator transfer function (column 10; lines 1-3) to provide high-resolution images. It would have been obvious to one of ordinary skill in art at the time the invention was

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made to employ the teachings of Possin in the method of Hsieh in order to provide precise calibration of the detector for further accurate estimation of the effects of tissue attenuation and energy distribution of the x-ray beam.

### ***Conclusion***


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze  
April 2, 2004

IK

  
**EDWARD J. GLICK**  
**SUPERVISORY PATENT EXAMINER**